

WHAT IS CLAIMED IS:

- 1 1. A semiconductor structure comprising:
2 a semiconductor core having a side surface;
3 a layer of insulating material on said side surface; and
4 electrically isolated electrodes arrayed along said layer of
5 insulating material on said side surface, said electrically isolated electrodes
6 including a conductive material having etch selectivity with respect to said
7 insulating material.

- 1 2. The semiconductor structure of claim 1 wherein said electrically isolated
2 electrodes extend substantially in a direction orthogonal to a major surface of said
3 semiconductor core, said major surface being orthogonal to said side surface.

- 1 3. The semiconductor structure of claim 1 wherein said conductive material
2 includes silicon-based conductive material.

- 1 4. The semiconductor structure of claim 3 wherein said silicon-based
2 conductive material includes polysilicon.

- 1 5. The semiconductor structure of claim 1 wherein said semiconductor core
2 includes single-crystal silicon.

- 1 6. The semiconductor structure of claim 1 wherein said insulating material of
2 said layer includes oxide of said semiconductor core.

- 1 7. The semiconductor structure of claim 1 wherein said electrically isolated
2 electrodes are additionally arrayed over a major surface of said semiconductor
3 core, said major surface being orthogonal to said side surface.

1 8. The semiconductor structure of claim 7 further comprising interconnects
2 electrically connected to selected ones of said electrically isolated electrodes, said
3 interconnects being positioned over said major surface of said semiconductor
4 core.

1 9. The semiconductor structure of claim 7 wherein said electrically isolated
2 electrodes are additionally arrayed along a second side surface of said
3 semiconductor core.

1 10. A semiconductor structure comprising:
2 a semiconductor core having a major surface and a side surface,
3 said major surface being orthogonal to said side surface;
4 a layer of insulating material on said side surface; and
5 electrically isolated electrodes arrayed along said layer of
6 insulating material on said side surface such that said electrically isolated
7 electrodes extend substantially in a direction orthogonal to said major surface, said
8 electrically isolated electrodes including conductive material having etch
9 selectivity with respect to said insulating material.

1 11. The semiconductor structure of claim 10 wherein said conductive material
2 includes silicon-based conductive material.

1 12. The semiconductor structure of claim 11 wherein silicon-based conductive
2 material includes doped polysilicon.

1 13. The semiconductor structure of claim 10 wherein said semiconductor core
2 includes single-crystal silicon.

1 14. The semiconductor structure of claim 10 wherein said electrically isolated
2 electrodes additionally extend over said major surface of said semiconductor core.

1 15. The semiconductor structure of claim 14 further comprising interconnects
2 electrically connected to selected ones of said electrically isolated electrodes, said
3 interconnects being positioned over said major surface of said semiconductor
4 core.

1 16. A method for fabricating a semiconductor structure, the method
2 comprising:
3 providing a semiconductor core with a side surface;
4 forming a layer of insulating material on said side surface of said
5 semiconductor core;
6 forming a layer of conductive material adjacent to said layer of
7 insulating material on said side surface, said conductive material having etch
8 selectively with respect to said insulating material; and
9 selectively etching said layer of conductive material using a stop-
10 on-oxide deep reactive ion etching to define electrically isolated electrodes
11 arrayed along said layer of insulating material on said side surface.

1 17. The method of claim 16 wherein said selectively etching includes
2 selectively etching said layer of conductive material using said stop-on-oxide deep
3 reactive ion etching such that said electrical isolated electrodes extend
4 substantially in a direction orthogonal to a major surface of said semiconductor
5 core, said major surface being orthogonal to said side surface.

1 18. The method of claim 16 wherein said forming of said layer insulating
2 material includes forming a layer of oxide on said side surface of said
3 semiconductor core.

1 19. The method of claim 16 wherein said forming of said layer of conductive
2 material includes forming a layer of silicon-based conductive material adjacent to
3 said layer of insulating material.

1 20. The method of claim 19 wherein said forming of said layer of silicon-
2 based conductive material includes forming a layer of polysilicon adjacent to said
3 layer of insulating material.

1 21. The method of claim 16 wherein said providing of said semiconductor
2 core includes providing a single-crystal silicon core with said side surface.

1 22. The method of claim 16 wherein said forming of said layer of conductive
2 material includes forming said layer of conductive material over a major surface
3 of said semiconductor core, said major surface being orthogonal to said side
4 surface, and wherein said selectively etching of said layer of conductive material
5 includes selectively etching said layer of conductive material over said major
6 surface of said semiconductor core using said stop-on-oxide deep reactive ion
7 etching such that said electrically isolated electrodes extend over said major
8 surface of said semiconductor core.

1 23. The method of claim 22 further comprising forming interconnects over
2 said major surface of said semiconductor core, said interconnects being
3 electrically connected to selected ones of said electrically isolated electrodes.